

ICE CORE LABORATORY

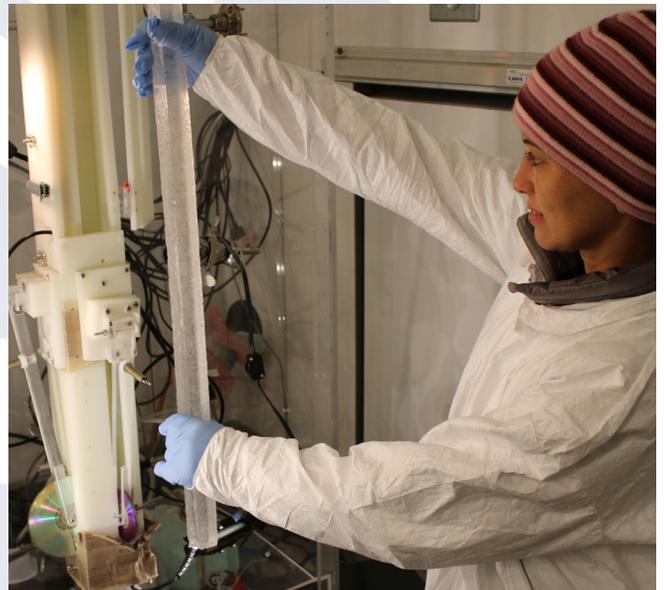
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WHY STUDY ICE CORES?

Glaciers and ice sheets contain ice which has remained frozen for millennia. By drilling into the ice and analyzing the chemistry of the frozen water and trapped air bubbles, we can determine the past changes in climate, ice sheet size, and sea level, atmospheric composition, and how humans have impacted the environment and the environment has impacted humans.

HOW DO WE ANALYZE ICE CORES?

The DRI Ice Core Laboratory is arguably the premier state-of-the-art facility; we specialize in the development and application of leading edge technologies for the analysis of polar and alpine ice cores. The Ice Core Laboratory includes cold-room, class 100 trace chemistry clean room, and wet chemistry laboratories. With the DRI method, ice cores are analyzed by continuous melting on a custom-built heated plate. Using a series of high precision pumps, the melt water is then transferred to a suite of instruments allowing for high resolution measurements in real time. The Ice Core Laboratory also hosts the trace chemistry laboratory which includes two Thermo-Finnigan Element2 high-resolution ICP-MS instruments allowing for the measurement of elements to as low as parts per quadrillion concentration. The Ice Core Laboratory and its staff are equipped to analyze snow and ice samples from around the globe. The Ice Core Laboratory analyzes ice cores provided by researchers from around the world, supports research and training of undergraduate and graduate students, and routinely hosts international students and scientists.

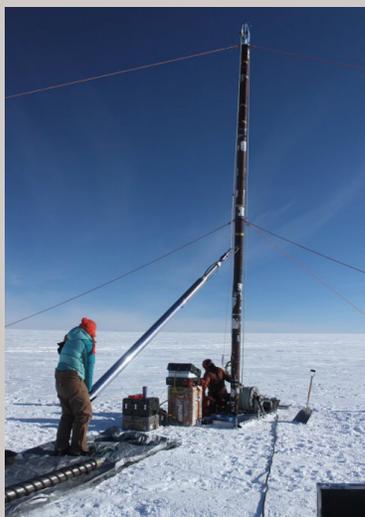


NEVADA SCIENCE, GLOBAL SOLUTIONS

The Desert Research Institute (DRI) is a recognized world leader in basic and applied interdisciplinary research. Committed to scientific excellence and integrity, DRI faculty, students, and staff have developed scientific knowledge and innovative technologies in research projects around the globe. Since 1959, DRI's research has advanced scientific knowledge, supported Nevada's diversifying economy, provided science-based educational opportunities, and informed policy makers, business leaders, and community members. With campuses in Reno and Las Vegas, DRI serves as the non-profit research arm of the Nevada System of Higher Education.

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RESEARCH HIGHLIGHTS

We conduct research for a broad range of applied projects worldwide including:

- Human impacts on remote regions such as heavy metal pollution of the Antarctic since the late 19th century, and industrial pollution of the Northern Hemisphere during recent decades to millennia including soot, heavy metals, acid rain, and greenhouse gases.
- Impacts of volcanism and other climate variables on human societies from the Bronze Age to present (last 3,000 years) in collaboration with historians and climate modelers.
- Linkages between large scale atmospheric circulation, hydroclimate, and wildfires such as during the Holocene (last 14,000 years).
- Past drivers and changes of desert dust in the atmosphere and impacts on Earth's energy balance, ocean fertilization, and carbon cycle.
- Effect of soot, desert dust, and other impurities on aging and melting of seasonal snow packs in the western United States and impacts on water resources.



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